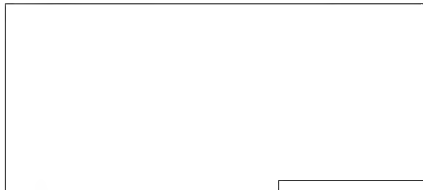


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28 February 1958



DOC	<u>2</u>	REV DATE	<u>19 MAR 1958</u>	BY	<u>064540</u>
ORIG COMP	<u>056</u>	CPI	<u>56</u>	TYPE	<u>01</u>
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JUST	<u>22</u>	NEXT REV	<u>2010</u>	AUTH:	MD 10-2

Attention:



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Subject: Proposal for Antenna and Pedestal Assembly.


Enclosure: (1) Three copies,  detailed cost breakdown.

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Gentlemen:

In accordance with your request, we are submitting herewith our proposal for the design and fabrication of quantity (1) antenna and pedestal.

Our proposal, on a cost plus fixed-fee basis, assuming that this work will be incorporated by a Work Order or Change Order to RD-128, is \$29,750.08, including fixed fee.

Our proposal is submitted in accordance with the following specifications and technical requirements which were agreed upon by  and Government technical personnel.

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Frequency Range: 150-1000 megacycles to be covered in 3 bands with 3 interchangeable feeds.

VSWR: No greater than 3 to 1 over the specified frequency range.

Pattern: The half-power beamwidths of the main lobe ranging from approximately 60 degrees at 150 mc to approximately 8 degrees at 1000 mc in both azimuth and elevation planes. The side lobes shall be at least 6 db down from the peak of the main lobe and the front-to-back ratio shall be greater than 10 db.

Polarization: Selectable, by orientation of feed, either vertical, horizontal or 45 degrees.

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**R. F. Transmission Line:** Low loss, 50 ohm coaxial cable not more than 50 feet in length.

**Size and Weight:** Maximum size shall be less than 12 feet high by 8 feet wide by 5 feet deep and the weight shall be less than 1200 pounds.

**Pedestal:** The antenna shall be mounted on a motor driven pedestal capable of rotating the antenna continuously in azimuth, both clockwise and counterclockwise, at a speed of 2 revolutions per minute. The pedestal shall incorporate a rotary joint in the R. F. transmission line and a Synchro generator for providing bearing information to a remote indicator. Primary power for the operation of the drive motor will be specified by the U. S. Government at the time the contract is let. It will be selected from one of the following: 110 volt, 60 cycle, single phase; 220 volt, 60 cycle, 3 phase; 220 volt D. C.

**Remote Control and Indication:** Provision shall be made for controlling the pedestal drive motor and for indicating the azimuth bearing of the antenna with an accuracy of  $\pm 1$  degree at a remote position not more than 50 feet from the antenna.

**Assembly and Disassembly:** Antenna shall be capable of being broken down into 3 major sub-assemblies - reflector, reflector mounting structure and pedestal - with provisions to facilitate assembly and disassembly of these items. Provision is to be made to allow quick interchange of feed assemblies.

**Environment:** The antenna assembly shall be capable of operation (at degraded performance) in a wind of up to approximately 60 miles per hour and severe icing conditions up to 1 inch in thickness. The stated maximum wind velocity is a rough estimate, and more precise values will be furnished as the work progresses. Above the maximum wind velocity the reflector should be removed to prevent mechanical damage to rotating mechanisms, motors, etc.

**Test Data:** E-plane and H-plane patterns, gain plots and VSWR plots at 3 frequencies (lower, center and upper) in each of the 3 bands required.

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The proposed design approach is to provide an 8 foot diameter paraboloidal reflector with 3 sleeve dipole feed assemblies each operating over a slightly less than 2 to 1 frequency band. (150-280 mc, 280-550 mc, 550-1000 mc). Provision for rapid interchange and orientation of the dipoles will be made. The pedestal will incorporate a reversible drive motor, a gear train, a contacting type coaxial rotary joint and a Synchro generator for providing bearing information. Type HO- 7/8 inch Heliac Cable (Andrew Corporation) is proposed for the transmission line. The maximum attenuation of this cable at the frequencies involved is less than 2 db per 100 feet. The remote control and indicator box will incorporate an on-off reversing switch for the drive motor, a Synchro follower with pointer and dial indicator calibrated in degrees for bearing information. Interconnecting cables from remote box to antenna, 50 feet in length, will be provided. Size and weight will be well within the specified limitations. All components will be protected against corrosion and weather normally encountered with shipborne equipment. Type N fittings will be provided.

In accordance with your request, every attempt will be made for the delivery of this equipment in approximately ninety (90) days from receipt of contractual authorization.

In view of the very short desired delivery, we are considering the above technical requirements as target specifications. This is especially true for the front-to-back ratio at the lowest frequencies.

Our proposal contained herein is considered firm for a period of ninety (90) days from the date of this letter.

It is assumed that all other terms and conditions which are presently applicable to RD-128 and Work Orders thereunder would remain unchanged as heretofore amended.

 appreciates the opportunity of submitting this proposal, and if we may be of further assistance or additional data is required, it will be furnished upon request.

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Very truly yours,



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Director, Contract Administration Dept.

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